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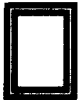
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17001f K.7
7/16/99

ENVIRON

July 16, 1999

Mr. Michael McAteer
USEPA, HSRW-6J
77 West Jackson Blvd.
Chicago, IL 60604-3590

Re: First and Second Quarter 1999 Surface and Subsurface Water Monitoring Report
Enviro-Chem Site
Zionsville, Indiana

Dear Mr. McAteer:

This report summarizes the monitoring of the till wells, the sand and gravel wells and the surface water of the Unnamed Ditch at the Enviro-Chem Site in Zionsville, Indiana during the first and second quarters of 1999. Background well and surface water data is being supplied under separate cover.

The specific tasks completed during the first and second quarter of 1999 included:

- Collection of water level measurements from 16 compliance monitoring wells on February 16, 1999;
- Quarterly sampling of the 6 off-site till monitoring wells, the 5 off-site sand/gravel wells, and 2 surface water locations at the Unnamed Ditch during the week of February 16, 1999;
- Collection of water level measurements from 16 compliance monitoring wells on May 10, 1999;
- Quarterly Sampling of the 6 off-site till monitoring wells, the 5 off-site sand/gravel wells, and 2 surface water locations at the Unnamed Ditch during the week of May 10, 1999;
- Semi-annual sampling of the 4 on-site till monitoring wells during the week of May 10, 1999, and
- Analysis of all the surface and subsurface water samples collected for parameters specified in the Revised Remedial Action, Exhibit A dated May 7, 1997 (Revised Exhibit A).

A. Water Flow Determination

1. Data Collection

On February 16, 1999 and on May 10, 1999, the depth to water was measured at the four on-site till zone monitoring wells, the six off-site till zone monitoring wells, and the four off-site sand/gravel zone monitoring wells using an electronic water level meter. In addition, the water level in Piezeometer-1 was obtained. Measurements were recorded to the nearest 0.01 foot. The depth to water measurements and the corresponding water elevation data derived from these measurements for both the first quarter, 1999 sampling event (February) and the second quarter, 1999 sampling event (May) are presented in Table 1. The till zone and sand/gravel zone monitoring well locations are shown in Figure 1.

2. Water Elevation Data

The water elevations and contours for the sand/gravel zone at the site for the first quarter are provided in Figure 2. The water elevations and contours for the sand/gravel zone for the second quarter are presented in Figure 3. The water contours, based on the first and second quarter 1999 measurements, suggest that the direction of water flow, in the vicinity of the site, is to the southwest. The water contours, based on the first quarter measurements, suggest the water in the northern portion of the site is flowing on-site from the east.

B. Off-Site Subsurface Water Sampling

As part of the first quarter sampling of offsite wells, 13 subsurface water samples (including duplicates) were collected from the off-site monitoring wells (T-5 through T-10, S-1 through S-4A, and ECC MW13) on February 16 through 19, 1999. As part of the second quarter sampling, 13 subsurface water samples (including duplicates) were also collected from the off-site monitoring wells (T-5 through T-10, S-1 through S-4A, and ECC MW13) on May 10 through 13, 1999. All samples were collected as described in Section 6.3 of the Revised Remedial Action Field Sampling Plan Revision 4 dated 4/28/98 (FSP).

In accordance with the FSP, the off-site monitoring wells were purged a minimum of three well volumes of water or until the wells went dry, prior to sampling. The water in the till wells was evacuated using dedicated disposable bailers. Due to the poor recovery of some of the till wells (i.e., T-5 and T-8), the samples from these wells were collected over a period of 1 to 2 days. For all the till wells the volatile organic compounds (VOC) and hexavalent chromium samples were collected as soon as possible on the day of purging, in order to prevent the volatilization and the degradation of the samples. The subsurface water samples were collected from the till wells using dedicated, decontaminated Teflon bailers.

The water in the sand/gravel wells was purged using a peristaltic pump and dedicated polyethylene tubing. The intake for the polyethylene tubing was placed at the bottom of the screened interval. The water sample was collected from the bottom of the well with the peristaltic pump and tubing.

The metals and polychlorinated biphenyls (PCBs) samples were filtered using a 0.45 micron filter in accordance with the Section 6.3 of the FSP. Field measurements of pH, temperature, specific conductivity, and dissolved oxygen were collected at various times during the purging procedure. Field indicator parameters and other information recorded during well purging and sampling are provided in Appendix A.

C. On-Site Subsurface Water Sampling

As part of the semi-annual sampling of the on-site compliance monitoring wells, four subsurface water samples were collected from the four on-site till wells. These samples were collected during the second quarterly sampling of the off-site monitoring wells. The on-site till compliance monitoring wells were purged and sampled using the same methodology as was used for the purging and sampling of the off-site till monitoring wells.

D. Surface Water Sampling

Surface water samples were collected from 2 locations along Unnamed Ditch (SW-1 and SW-2) during both the first quarter and second quarter 1999 sampling events. Samples were not collected from the NSL-1 location since water was not flowing from the North Side Landfill discharge to the Unnamed Ditch during either sampling event. The surface sample locations are shown on Figure 1. Samples were collected as described in Section 6.3 of the FSP.

Field measurements of pH, temperature, specific conductivity, and dissolved oxygen were collected from a sample of the water taken from the stream. Field indicator parameters as well as the rain accumulation measurement recorded during the storm proceeding the surface water sampling are provided in Appendix A.

E. Sample Analysis and Results

Following sample collection, the samples were placed in an ice-filled cooler and were shipped via overnight courier to CompuChem Laboratories of Cary, North Carolina, for analysis. Appropriate chain-of-custody protocols were followed throughout sample handling.

Surface and subsurface water samples were analyzed for the parameters listed in Table 3-1 of Revised Exhibit A in accordance with the analytical methods summarized in Table 7-1 of the FSP. Analytical results for the first quarter, 1999 samples are summarized in Table 2 (off-site subsurface water and surface water samples). Analytical results for the semi-annual sampling of the on-site subsurface samples are contained in Table 3, and the analytical results for the second quarter, 1999, samples are summarized in Table 4 (off-site subsurface water and surface water samples). Appendix B contains the full analytical results for all the surface, subsurface, and the quality assurance and quality control samples for both sampling events.

F. Quality Assurance and Quality Control Procedures

To monitor the effectiveness of decontamination procedures, ENVIRON collected field blanks by pouring deionized water through a decontaminated Teflon bailer into a sample container or by pumping deionized water through the peristaltic pump and tubing into a sample container for the metals, PCB, and cyanide samples, the field blank water was also passed through a .45 micron filter. A total of 2 field blanks were collected and analyzed each quarter. Trip blanks to monitor possible contamination from sample handling, transport, and storage were analyzed for VOCs. The trip blanks accompanied the samples and were analyzed for the VOCs listed in Table 3-1 of Revised Exhibit A. The trip and field blank sample results are presented in Appendix A.

To evaluate the reproducibility of results, ENVIRON collected duplicate surface and subsurface water samples. One duplicate sample was collected for every 20 samples. The duplicate samples were collected by pouring the subsurface water from the bailer into two sets of sample containers or by pumping the subsurface water into two sets of sample containers. The duplicate surface water sample was collected at the same time as the sample it was duplicating. The results of the duplicate samples are summarized in Table 4. In addition to the duplicate samples, ENVIRON collected extra sample volume from 5 percent of the wells for the laboratories matrix spike and matrix spike duplicate (MS/MSD) samples. The results for each sample in the duplicate pairs were similar, indicating good reproducibility of the sampling and analytical methods.

G. Product Noted in T-2

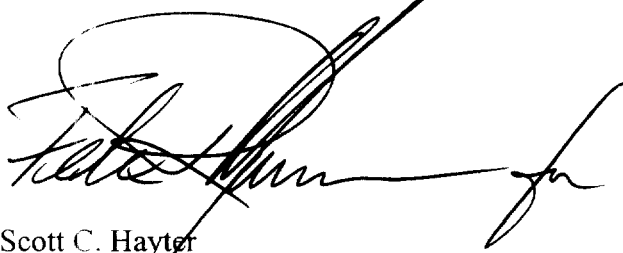
During the second quarter, 1999 sampling event free product was noted in the on-site till monitoring well T-2. During the purging of T-2, a liquid that appeared to be free product was retrieved. This apparent free product appeared after approximately 2.5 well volumes (4.5 to 5 gallons) had been removed from the well. The product was dark in color, had a heavy petroleum odor, and a density greater than that of water. This apparent free product did not appear to be soluble in water; there was a defined interface between the material and the water. It should be noted that ENVIRON was using a weighted Teflon bailer to purge this well. This bailer was lowered to the bottom of the well many times prior to any retrieval of the product. This suggests that the apparent free product entered the well only after the well volume was sufficiently lowered. Approximately one quart of product was removed during that sampling event.

While on site for other sampling events, ENVIRON has since bailed the T-2 well dry on two occasions. Each time less product has been present than the time before. When bailed dry on July 14, 1999, less than 1 pint of product was recovered from this well.

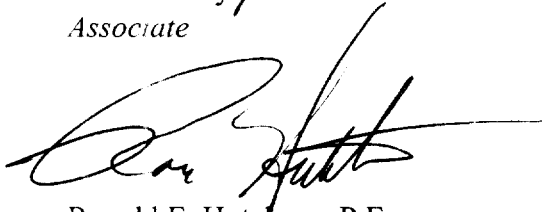
If you have any questions about this letter or any other aspects of the project, please do not hesitate to contact us.

Sincerely,

ENVIRON International Corporation

A handwritten signature in black ink, appearing to read 'Scott C. Hayter', with a large, stylized loop at the end.

Scott C. Hayter
Associate

A handwritten signature in black ink, appearing to read 'Ronald E. Hutchens', with a large, stylized loop at the end.

Ronald E. Hutchens, P.E.
Principal

cc: Mr. Roy Ball – ENVIRON International Corp.
Mr. Norman Bernstein – Bernstein & Associates
Mr. Mark Dowiak – Radian
Mr. Myron Waters – IDEM
Mr. Tim Harrison – CH2M Hill
Mr. George Anastos -- Versar

TABLES

TABLE 1

WATER ELEVATIONS - FIRST AND SECOND QUARTER 1999
 MONITORING WELLS
 ENVIRO-CHEM SITE
 ZIONSVILLE, INDIANA

Well Number	Top of Casing Elevation (feet AMSL)	Depth-to-Water (feet) 2/16/99	Water Elevation (feet AMSL) 2/16/99	Depth-to-Water (feet) 5/10/99	Water Elevation (feet AMSL) 5/10/99
T-1	No Data	19.93	--	18.53	--
T-2	No Data	20.96	--	20.19	--
T-3	No Data	17.31	--	16.4	--
T-4A	No Data	16.68	--	16.3	--
T-5	889.08	7.77	881.31	12.2	876.88
T-6	891.76	10.9	880.86	10.06	881.7
T-7	891.02	10.28	880.74	10.28	880.74
T-8	888.88	8.61	880.27	8.8	880.08
T-9	882.08	2.2	879.88	2.4	879.68
T-10	889.42	7.87	881.55	8.23	881.19
S-1	890.27	8.83	881.44	9.16	881.11
S-2	888.46	7.88	880.58	8	880.46
S-3	882.45	2.84	879.61	2.99	879.46
S-4A	No Data	9.19	--	9.25	--
P-1	889.66	7.8	881.86	9.1	880.56
MW-13	883.3	10.75	872.55	10.35	872.95

Key:

AMSL = Above Mean Sea Level.

TABLE 2

SUMMARY OF FIRST QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
MONITORING WELLS AND SURFACE WATER SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

Parameter Detected		Off Site Well No./ Sampling Point No.												
		T-5	T-6	T-7	T-8	T-9	T-10	S-1	S-2	S-3	S-4A**	MW-13	SW-1	SW-2
Volatile Organics														
1,1-Dichloroethene	[1.85]	--	*	--	--	--/--	--	--	--	--/--	--	--	--	--
1,2-Dichloroethene(total)	[1.85]	--	47,000	93	6	--/--	190	--	2	--/--	87	8	--	--
Methylene Chloride	[15.7]	--	1,500 B	--	--	--/--	--	--	--	--/--	--	--	--	--
Tetrachloroethene	[8.85]	--	*	--	--	--/--	--	--	--	--/--	--	--	--	--
1,1,2-Trichloroethane	[41.8]	--	*	--	--	--/--	--	--	--	--/--	--	--	--	--
Trichloroethene	[80.7]	--	*	--	--	--/--	--	--	--	--/--	--	--	--	--
Vinyl chloride	[525]		1,100 J	--	--	--/--	--	--	--	--/--	--	--	--	--
Semi-Volatile Organics		--	--	--	--	--/--	--	--	--	--/--	--	--	--	--
Polychlorinated biphenyls	[0.00079]	*	*	*	*	*/*	*	*	*	*/*	*	*	*	*
Inorganics														
Arsenic	[0.0175]	*	29.1	*	*	*/*	1.7 B	1.4 E	*	*/*	2.5 B	8.1 B	*	*
Barium	[1,000]	--	2,710	--	--	--/--	--	--	--	--	--	--	--	--
Zinc	[47]	--	200	--	107	160/49.4	192	--	--	--/--	--	--	--	--
Cyanide	[5.2]	*	*	*	*	*/*	*	*	*	*/*	*	*	*	*

Key:

[3,500] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.

-- = Not detected above Acceptable Stream Concentration.

B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).

J = Estimated Value.

-- / -- = Duplicate water sample analyzed.

Notes:

All concentrations are in ug/L.

* Undetected result with detection level greater than "Acceptable Concentration" due to sample dilution

** Wells S-4 and S-4D were abandoned and replaced with well S-4A.

TABLE 3
SUMMARY OF SEMIANNUAL 1999 ANALYTICAL RESULTS FOR ON-SITE
MONITORING WELLS AND SURFACE WATER SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

Parameter Detected		Well No.			
		T-1	T-2	T-3	T-4A
Volatile Organics					
Acetone	[3,500]	--	*	--	--
1,1 Dichloroethene	[7]	--	1,900 J	*	--
1,2-Dichloroethene(total)	[70]	--	4,200	5,780	--
Ethylbenzene	[680]	--	1,900 J	--	--
Methyl ethyl ketone	[170]	--	*	*	--
Methyl isobutyl ketone	[1,750]	--	12,000 JB	--	--
Methylene Chloride	[4.7]	--	71,000	98 JB	--
Tetrachloroethene	[0.69]	14	79,000 D	--	--
Toluene	[2,000]	--	22,000	--	--
1,1,1-Trichloroethane	[200]	--	91,000 D	--	--
1,1,2 Trichloroethane	[.61]	--	*	*	--
Trichloroethene	[5]	22	190,000 D	*	--
Xylenes (total)	[10,000]	--	8,900	--	--
Vinyl Chloride	[2]	--	*	270	--
Semi-Volatile Organics					
Bis (2-ethylhexyl) phthalate	[2.5]	--	8,000 J	9 J	--
Di-n-butyl phthalate	[3,500]	--	*	--	--
1,2-Dichlorobenzene	[600]	--	77,000	--	--
Isophorone	[8.5]	*	*	--	*
Phenol	[1,400]	--	*	--	--
Polychlorinated biphenyls	[0.0045]	--	--	29 J	--
Inorganics					
Arsenic	[0.0175]	2.1 B	8.1 B	10.6	*
Cyanide	[5.2]	--	--	27	--

Key:

- [2] = Acceptable Subsurface Water Concentration from Revised Exhibit A, Table 3-1.
- = Not detected above Acceptable Stream Concentration.
- B = Analyte was also detected in the blank.
- J = Estimated Value.
- D = Compound quantitated on a diluted sample.

Notes:

- All concentrations are in ug/L.
- * Undetected result with detection level greater than "Acceptable Concentration" due to sample dilution

TABLE 4

SUMMARY OF SECOND QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
MONITORING WELLS AND SURFACE WATER SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

Parameter Detected		Off Site Well No./ Sampling Point No.												
		T-5	T-6	T-7	T-8	T-9	T-10	S-1	S-2	S-3	S-4A	MW13	SW-1	SW-2
Volatile Organics														
1,1-Dichloroethene	[1.85]	--	*	*	--	--/--	--	--	--	--	*/*	--	--	--
1,2-Dichloroethene(total)	[1.85]	--	54,000 D	69	6	--/--	228 D	--	--	--	100/87	2.5	--	--
Methylene chloride	[15.7]	--	570 JB	--	--	--/--	--	--	--	--	--/--	--	--	--
Tetrachloroethene	[8.85]	--	*	--	--	--/--	--	--	--	--	--	--	--	--
Toluene	[3,400]	--	4,300	--	--	--/--	--	--	--	--	--/--	--	--	--
1,1,2-Trichloroethane	[41.8]	--	*	--	--	--/--	--	--	--	--	--	--	--	--
Trichloroethene	[80.7]	--	*	--	--	--/--	--	--	--	--	--	--	--	--
Vinyl chloride	[525]	--	2,500	--	--	--/--	--	--	--	--	--/--	--	--	--
Semi-Volatile Organics														
Polychlorinated biphenyls	[0.00079]	--	--	--	--	--/--	--	--	--	--	--/--	--	--	--
Inorganics														
Arsenic	[0.0175]	3.0 B	36.8	*	2.0 B	*/*	*	*	*	4.4 B	2.0 B/*	12.7	2.9 B	4.6 B
Zinc	[47]	--	--	--	--	--/191	67.3	--	--	--	--/--	--	--	--
Cyanide	[5.2]	--	--	--	--	--	--	--	--	--	--/--	--	10.3	7.1 B

Key:

[3,500] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.

-- = Not detected above Acceptable Stream Concentration.





B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).

J = Estimated Value.

D = Compound quantitated on a diluted sample.

-- / -- = Duplicate water sample analyzed.

FIGURES

-  T-1 ONSITE TILL WELL LOCATION
 S-2 SAND WATER--BEARING ZONE WELL LOCATION
 SW-2 SURFACE WATER SAMPLING LOCATION
 MW-13 PREVIOUSLY INSTALLED MONITORING WELL

1
FIGURE

SUBSURFACE AND SURFACE WATER SAMPLING LOCATIONS

ENVIRON

650 DUNDEE ROAD, SUITE 150, NORTHBROOK, IL 60062
 PRINCETON, NJ • ARLINGTON, VA • EMERYVILLE, CA • IRVINE, CA • NOVATO, CA
 LOVELAND, OH • HOUSTON, TX • LONDON, UK • EDINBURGH, UK

ENVIRO-CHEM SITE
 ZIONSVILLE, INDIANA

12/21/98
DATE

1"=30'
SCALE

6585A Fig1
CADD FILE

7/13/99
PLOT DATE

S. HAYTER
DESIGNED BY

H. ZUCZEK
DRAFTED BY

R. HUTCHENS
APPROVED BY

—— 878.60 —— GROUND WATER CONTOUR WITH ELEVATION (IN FEET ABOVE MSL)

⊕^{T-2} ONSITE TILL WELL LOCATION

⬠^{S-2} SAND WATER-BEARING ZONE WELL LOCATION

△^{SW-2} SURFACE WATER SAMPLING LOCATION

⊙^{MW-13} PREVIOUSLY INSTALLED MONITORING WELL

2
FIGURE

WATER ELEVATION CONTOURS
IN SAND/GRAVEL ZONE
1st Quarter 1999

ENVIRON

650 DUNDEE ROAD, SUITE 150, NORTHBROOK, IL 60062
PRINCETON, NJ • ARLINGTON, VA • EMERYVILLE, CA • IRVINE, CA • NOVATO, CA
LOVELAND, OH • HOUSTON, TX • LONDON, UK • EDINBURGH, UK

ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

12/21/98
DATE

1"=30'
SCALE

6858A Fig2
CADD FILE

7/13/99
PLOT DATE

S. HAYTER
DESIGNED BY

H. ZUCZEK
DRAFTED BY

R. HUTCHENS
APPROVED BY

—— 878.60 —— GROUND WATER CONTOUR WITH ELEVATION (IN FEET ABOVE MSL)

⊕ T-2 ONSITE TILL WELL LOCATION

⬠ S-2 SAND WATER-BEARING ZONE WELL LOCATION

△ SW-2 SURFACE WATER SAMPLING LOCATION

● MW-13 PREVIOUSLY INSTALLED MONITORING WELL

3
FIGURE

WATER ELEVATION CONTOURS
IN SAND/GRAVEL ZONE
2nd Quarter 1999

ENVIRON

650 DUNDEE ROAD, SUITE 150, NORTHBROOK, IL 60062
PRINCETON, NJ • ARLINGTON, VA • EMERYVILLE, CA • IRVINE, CA • NOVATO, CA
LOVELAND, OH • HOUSTON, TX • LONDON, UK • EDINBURGH, UK

ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

12/21/98
DATE

1"=30'
SCALE

6858A Fig3
CADD FILE

7/13/99
PLOT DATE

S. HAYTER
DESIGNED BY

H. ZUCZEK
DRAFTED BY

R. HUTCHENS
APPROVED BY

APPENDIX A

TABLE A-1

**FIRST QUARTER 1999 OFF-SITE TILL WELLS
FIELD MEASUREMENTS AND PURGE DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

Field Parameters and Data	T-5	T-6	T-7	T-8	T-9	T-10
Date	2/16/99	2/16/99	2/18/99	2/17/99	2/17/99	2/17/99
Weather Conditions	Sunny 35 F	Sunny 35 F	Overcast 39 F	Overcast 35 F	Overcast 35 F	Overcast 35 F
<i>Before Purging</i>						
PID Reading (ppm) 2/16/99	5	710	3.3	0.4	4.2	1.2
pH	6.66	6.71	12.73	7.36	6.92	6.9
Dissolved Oxygen (ppm)	6.35	1.07	4.3	2.49	1.34	1.75
Temperature (C)	9.7	9.3	8.7	9	7.3	9.4
Specific Conductivity (uS/cm)	0.716	3.77	8.34	0.728	1.16	1.16
Total Depth of Well (Feet below ground surface)	19.2	19.4	17.6	15.9	25.3	17.9
Depth to water (Ft from top of inner casing to water)	7.77	10.9	10.28	8.61	2.2	7.87
Estimated water volume in well (gallons)	1.9	1.4	1.24	1.2	3.8	1.64
Three Well Volumes(gallons)	5.6	4.2	3.7	3.60	11.3	4.9
<i>After Purging</i>						
Purge Start	1030	1600	1125	935	1425	1025
Purge End	1045	NM	1150	1550	1510	1055
Purge Method	BT	BT	PP	BT	BT	BT
Approximate Purge Rate (gpm)	0.17	NM	0.15	NM	0.33	0.16
Total Volume Purged (gal.)	2.5	5	3.7	1.9**	11.5	4.9
pH	7.46	6.66	9.96	7.4	6.98	7.04
Dissolved Oxygen (ppm)	3.08	1.2	1.89	NM	2.1	2.44
Temperature (C)	10.7	10.4	9.4	9.6	12.1	10.4
Specific Conductivity (uS/cm)	0.691	3.65	0.748	0.697	1.12	1.18
<i>Sampling</i>						
Sampling Date(s)	2/16, 2/19 and	2/16/99	2/18/99	2/17/99	2/17/99	2/17/99
Sampling End Time	2/19/99	1650	1200	1550	1725	1645
Sampling Method	BT	BT	PP	BT	BT	BT
Notes:						
** = Well purged dry	NM = no measurement					
BT = Bailer (Teflon)	PP = Peristaltic Pump		PID = Photoionization Detector			

TABLE A-2

**FIRST QUARTER 1999 OFF-SITE SAND/GRAVEL ZONE WELLS (INCLUDING ECC MW-13)
FIELD MEASUREMENTS AND PURGE DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

Field Parameters and Data	S-1	S-2	S-3	S-4A	MW-13
Date	2/16/99	2/18/99	2/18/99	2/18/99	2/18/99
Weather Conditions	Sunny 35 F	Overcast 39 F	Overcast 39 F	Overcast 39 F	Overcast 39 F
<i>Before Purging</i>					
PID Reading (ppm) 2/16/99	<1	<1	4.9	2.9	0.4
pH	7.43	7.49	7.32	7.05	6.81
Dissolved Oxygen (ppm)	7.5	0	0.41	0.28	0.09
Temperature (C)	12.2	12.1	13	11.5	8.8
Specific Conductivity (uS/cm)	0.651	1.07	0.877	0.684	1.1
Total Depth of Well (Feet below ground surface)	40.9	21.9	34.1	45.5	12.26
Depth to water (Ft from top of inner casing to water)	8.83	7.88	2.84	9.19	10.75
Estimated water volume in well (gallons)	5.24	2.3	15.13	5.97	0.4
Three Well Volumes(gallons)	15.7	6.9	15.4	17.9	1.2
<i>After Purging</i>					
Purge Start	1425	1440	1715	942	1610
Purge End	1500	1450	1735	1005	1625
Purge Method	PP	PP	PP	PP	PP
Approximate Purge Rate (gpm)	0.5	0.82	0.8	0.8	0.3
Total Volume Purged (gal.)	17	8.2	15.7	18.3	4.5
pH	7.49	7.4	7.32	7.3	6.8
Dissolved Oxygen (ppm)	0.68	0.45	0.35	0.42	0.58
Temperature (C)	11.9	12.3	12.9	11.8	8.7
Specific Conductivity (uS/cm)	0.659	0.94	0.895	0.684	1.15
<i>Sampling</i>					
Sampling Date(s)	2/16/99	2/18/99	2/18/99	2/18/99	2/18/99
Sampling End Time	1500	1455	1740	1010	1635
Sampling Method	PP	PP	PP	PP	PP
Notes:					
** = Well purged dry BT = Bailer (Teflon)					
NM = no measurement PP = Peristaltic Pump					
PID = Photoionization Detector					

TABLE A-3

**FIRST QUARTER 1999 SURFACE WATER SAMPLING
FIELD MEASUREMENTS AND FLOW DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

Field Parameters and Data	SW-1	SW-2
Date	2/19/99	2/19/99
Weather Conditions	Windy 55 F	Windy 55 F
Sampling Time	1410	1515
pH	8.23	8.25
Dissolved Oxygen (ppm)	9.76	10.68
Temperature (C)	8.6	8.1
Specific Conductivity (uS/cm)	0.67	0.691
<i>Unnamed Ditch Flow Measurements</i>		
Flow Velocity (ft/sec)	NM	NM
Cross Sectional Area	NM	NM
Calculated Flow Volume (Gal/min)	NM	NM
<i>Storm Event - Rain Accumulation</i>		
Accumulation 24 hours prior to sampling (inches) *	0	0
Notes:		
NM = no measurement		
* measurement recorded at Fisher weather station in Hamilton County		

TABLE A-4

**SECOND QUARTER 1999 ON-SITE TILL WELLS
FIELD MEASUREMENTS AND PURGE DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

Field Parameters and Data	T-1	T-2	T-3	T-4A
Date	5/10/99	5/11/99	5/11/99	5/11/99
Weather Conditions	Sunny 70 F	Sunny 85 F	Sunny 85 F	Sunny 85 F
Before Purging				
PID Reading (ppm) 5/10/99	2	1446*	10	5
pH	6.98	6.19	7	7.2
Dissolved Oxygen (ppm)	1.96	2.55	1.29	2.41
Temperature (C)	14.1	13.4	13.5	13.6
Specific Conductivity (uS/cm)	0.491	1.67	1.54	1.01
Total Depth of Well (Feet below ground surface)	26.1	28.3	26.51	23.6
Depth to water (Ft from top of inner casing to water)	16.52	19.3	15.3	15.9
Estimated water volume in well (gallons)	1.57	1.77	1.83	1.27
Three Well Volumes(gallons)	4.7	5.3	5.5	3.8
After Purging				
Purge Start	1705	800	950	1050
Purge End	1830	920	1030	1120
Purge Method	BT	BT	BT	BT
Approximate Purge Rate (gpm)	0.06	0.066	0.138	0.13
Total Volume Purged (gal.)	4.5	5.5	5.5	4
pH	7.56	7.51	7.08	7.07
Dissolved Oxygen (ppm)	2.97	6.3	1.9	6.38
Temperature (C)	14	14.4	13.2	13
Specific Conductivity (uS/cm)	0.55	1.59	1.5	1.04
Sampling				
Sampling Date(s)	5/10/99	5/11/99	5/11/99	5/11/99
Sampling End Time	1830	NM	1030	1120
Sampling Method	BT	BT	BT	BT
Notes: NM = no measurement BT = Bailer (Teflon)				
*PID displayed over range = above 2,000 ppm(max displayed) PP = Peristaltic Pump PID = Photoionization Detector				

**QUARTER 1999 OFF-SITE TILL WELLS
MEASUREMENTS AND PURGE DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

** = Well purged dry
BT = Bailer (Teflon)

NM = no measurement
PP = Peristaltic Pump

***PID displayed over range = above 2,000 ppm(max displayed)
PID = Photoionization Detector

TABLE A-6

SECOND QUARTER 1999 OFF-SITE SAND/GRAVEL ZONE WELLS (INCLUDING ECC MW-13)
 FIELD MEASUREMENTS AND PURGE DATA
 ENVIRO-CHEM SITE
 ZIONSVILLE, INDIANA

Field Parameters and Data	S-1	S-2	S-3	S-4A	MW-13
Date	5/11/99	5/11/99	5/11/99	5/11/99	5/13/99
Weather Conditions	Sunny 85 F	Sunny 85 F	Sunny 85 F	Sunny 85 F	Rain 68 F
<i>Before Purging</i>					
PID Reading (ppm) 5/10/99	834***	7742***	< 1	1	1
pH	7.11	7.07	6.9	6.69	6.07
Dissolved Oxygen (ppm)	0.98	1.13	0.85	0.94	1.26
Temperature (C)	14.5	15.1	15.7	15.2	11.2
Specific Conductivity (uS/cm)	0.72	1.13	1.21	0.72	1.06
Total Depth of Well (Feet below ground surface)	40.5	21.9	34.1	45.5	16.7
Depth to water (Ft from top of inner casing to water)	9.16	8	2.99	9.25	10.35
Estimated water volume in well (gallons)	5.11	2.27	5.07	5.9	1.03
Three Well Volumes(gallons)	15.33	6.8	15.2	17.7	3.1
<i>After Purging</i>					
Purge Start	1710	1600	1340	1235	1100
Purge End	1810	1640	1535	1325	1140
Purge Method	PP	PP	PP	PP	PP
Approximate Purge Rate (gpm)	0.258	0.163	0.13	0.35	0.075
Total Volume Purged (gal.)	15.5	6.5	15.1	17.5	3.1
pH	7.08	6.87	6.91	6.89	6.1
Dissolved Oxygen (ppm)	0.93	1.7	1.08	0.9	1.4
Temperature (C)	13.2	15	14.8	14.2	10.9
Specific Conductivity (uS/cm)	0.73	1.06	1.12	0.729	1.09
<i>Sampling</i>					
Sampling Date(s)	5/11/99	5/11/99	5/11/99	5/11/99	5/13/99
Sampling End Time	1810	1640	1535	1325	1140
Sampling Method	PP	PP	PP	PP	PP
Notes: NM = no measurement BT = Bailer (Teflon)					
***PID displayed over range = above 2,000 ppm(max displayed) PP = Peristaltic Pump PID = Photoionization Detector					

TABLE A-7

**SECOND QUARTER 1999 SITE SURFACE WATER SAMPLING
FIELD MEASUREMENTS AND FLOW DATA
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA**

Field Parameters and Data	SW-1	SW-2
Date	5/13/99	5/13/99
Weather Conditions	Rain 68 F	Rain 68 F
Sampling Time		1150
pH	6.49	7.12
Dissolved Oxygen (ppm)	5.98	7.5
Temperature (C)	14	14
Specific Conductivity (uS/cm)	1.46	1.57
<i>Unnamed Ditch Flow Measurements</i>		
Flow Velocity (ft/sec)	NM	NM
Cross Sectional Area	NM	NM
Calculated Flow Volume (Gal/min)	NM	NM
<i>Storm Event - Rain Accumulation</i>		
Accumulation 24 hours prior to sampling (inches)	0.08	0.08
Notes:		
NM = no measurement		
* measurement recorded at Fisher weather station in Hamilton County		

APPENDIX B

TABLE B-1
FIRST QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
TILL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 1 of 2]

Location		T-5	T-6	T-7	T-8	T-9	T-9	T-10
ENVIRON Sample ID		ECTGW5-02	ECTGW6-02	ECTGW7-02	ECTGW8-02	ECTGW9-02	ECTGW9-02D	ECTGW10-02
Collection Method		Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Collection Date		2/16-2/17/99	2/16-2/17/99	2/18/99	2/17/99	2/17/99	2/17/99	2/17/99
Comments							Duplicate	
Volatile Organics								
1,1-Dichloroethene	[1.85]	0.5 U	1,200 U	2 U	0.5 U	1 U	0.8 U	6 U
1,2-Dichloroethene(total)	[1.85]	0.5 U	47,000	93	6	1 U	0.8 U	190
Ethylbenzene	[3,280]	0.5 U	1,200 U	2 U	0.5 U	1 U	0.8 U	6 U
Methylene Chloride	[15.7]	0.7 B	1,500 B	3 B	0.7 B	2 B	0.8 U	7 B
Tetrachloroethene	[8.85]	0.5 U	1,200 U	2 U	0.5 U	1 U	0.8 U	6 U
Toluene	[3,400]	0.5 U	2,300	13	0.5 U	1 U	0.8 U	6 U
1,1,1-Trichloroethane	[5,280]	0.5 U	920 J	2 U	0.5 U	1 U	0.8 U	15
1,1,2-Trichloroethane	[41.8]	0.5 U	1,200 U	2 U	0.5 U	1 U	0.8 U	6 U
Trichloroethene	[80.7]	0.5 U	1,200 U	13	0.5 J	1 U	0.8 U	6 U
Xylene	[10,000]	0.5 U	1,200 U	3	0.5 U	1 U	0.8 U	6 U
Vinyl chloride	[525]	0.5 U	1,100 J	1 J	1	56	38	6 U
Semi-Volatile Organics								
Bis (2-ethylhexyl) phthalate	[50,000]	12 U	19 U	10 U	10 U	12	1 J	1 J
Di-n-butyl phthalate	[154,000]	12 U	19 U	10 U	10 U	10 U	9 U	9 U
1,2-Dichlorobenzene	[763]	12 U	27 D	10 U	10 U	10 U	9 U	9 U
Diethylphthalate	[52,100]	12 U	19 U	10 U	10 U	10 U	9 U	9 U
Naphthalene	[620]	12 U	7 DJ	10 U	10 U	10 U	9 U	9 U
Phenol	[570]	12 U	200 D	13	10 U	10 U	9 U	9 U
Polychlorinated biphenyls								
Aroclor-1016	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U
Aroclor-1221	[0.00079]	1 U	1 U	0.99 U	1 U	0.96 U	0.96 U	1 U
Aroclor-1232	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U
Aroclor-1242	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U
Aroclor-1248	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U
Aroclor-1254	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U
Aroclor-1260	[0.00079]	0.5 U	0.5 U	0.5 U	0.5 U	0.48 U	0.48 U	0.5 U

TABLE B-1
FIRST QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
TILL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 2 of 2]

Location	T-5	T-6	T-7	T-8	T-9	T-9	T-10
ENVIRON Sample ID	ECTGW5-02	ECTGW6-02	ECTGW7-02	ECTGW8-02	ECTGW9-02	ECTGW9-02D	ECTGW10-02
Collection Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Collection Date	2/16-2/17/99	2/16-2/17/99	2/18/99	2/17/99	2/17/99	2/17/99	2/17/99
Comments	Duplicate						
<i>Inorganics</i>							
Antimony [14]	3.0 B	3.6 B	2.9 B	2.4 B	1.5 B	1.4 B	2.1 B
Arsenic [0.0175]	1.4 U	29.1	1.4 U	1.4 U	1.4 U	1.4 U	1.7 B
Barium [1,000]	126	2,710	271	678	996	899	624
Beryllium [4]	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium [10]	1.3 B	4.4 B	0.21 B	0.54 B	1.7 B	1.3 B	1.6 B
Chromium VI [11]	10 U	10 U	10	10 U	10 U	10 U	10 U
Lead [10]	1.3 B	0.7 U	1.8 B	2.0 B	1.4 B	2.0 B	0.97 B
Manganese [7,000]	149	1,350	1.2 B	48.2	403	392	625
Nickel [100]	0.8 U	31	6.8	1.8 B	15	13.8	13.9
Silver [50]	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium [245]	0.5 U	2.0 B	0.73 B	0.81 B	0.5 U	0.53 B	0.5 U
Zinc [47]	24.1	200	46.6	107	160	49.4	192
Cyanide [5.2]	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tin [21,000]	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U

Key:

- [15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.
- U = Analyte not detected. The value shown is the associated detection limit.
- B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).
- J = Estimated Value.
- D = Compound quantitated on a diluted sample.

Note:

All concentrations are in ug/L.

TABLE B-2
FIRST QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
SAND/GRAVEL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 1 of 2]

Location ENVIRON Sample ID Collection Method Collection Date Comments	S-1 ECSGW1-02 Perist. Pump 2/16/99	S-2 ECSGW2-02 Perist. Pump 2/17/99	S-3 ECSGW3-02 Perist. Pump 2/18/99	S-3D ECSGW3-02 Perist. Pump 2/18/99 Duplicate	S-4A* ECSGW4A-02 Perist. Pump 2/18/99	MW-13 ECSGWMW1302 Perist. Pump 2/18/99
Volatile Organics						
1,1-Dichloroethene [1.85]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1 U
1,2-Dichloroethene(total) [1.85]	0.5 U	2	0.5 U	0.5 U	87	8
Ethylbenzene [3,280]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1
Methylene Chloride [15.7]	0.7 B	0.8 B	0.6 B	0.8 B	3 B	1 B
Tetrachloroethene [8.85]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1 U
Toluene [3,400]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1 U
1,1,1-Trichloroethane [5,280]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.9 J
1,1,2-Trichloroethane [41.8]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1 U
Trichloroethene [80.7]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	0.5 J
Xylene [10,000]	0.5 U	0.5 U	0.5 U	0.5 U	2 U	1
Vinyl chloride [525]	0.5 U	0.4 J	0.5 U	0.5 U	2 J	3
Semi-Volatile Organics						
Bis (2-ethylhexyl) phthalate [50,000]	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butyl phthalate [154,000]	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene [763]	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate [52,100]	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene [620]	10 U	10 U	10 U	10 U	10 U	10 U
Phenol [570]	10 U	10 U	10 U	10 U	10 U	10 U
Polychlorinated biphenyls						
Aroclor-1016 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U
Aroclor-1221 [0.00079]	0.95 U	1 U	0.95 U	0.95 U	1.0 U	0.94 U
Aroclor-1232 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U
Aroclor-1242 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U
Aroclor-1248 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U
Aroclor-1254 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U
Aroclor-1260 [0.00079]	0.48 U	0.5 U	0.48 U	0.48 U	0.50 U	0.47 U

TABLE B-2
FIRST QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
SAND/GRAVEL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 2 of 2]

Location	S-1	S-2	S-3	S-3D	S-4A*	MW-13
ENVIRON Sample ID	ECSGW1-02	ECSGW2-02	ECSGW3-02	ECSGW3-02	ECSGW4A-02	ECSGWMW1302
Collection Method	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump
Collection Date	2/16/99	2/17/99	2/18/99	2/18/99	2/18/99	2/18/99
Comments	Duplicate					
<i>Inorganics</i>						
Antimony [14]	1.0 U	1.0 U	1.0 U	1.0 U	1.9 B	1.0 U
Arsenic [0.0175]	1.4 B	1.4 U	1.4 U	1.4 U	2.5 B	8.1 B
Barium [1,000]	355	548	515	513	367	187
Beryllium [4]	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium [10]	1.1 B	1.5 B	0.75 B	0.85 B	0.85 B	1.4 B
Chromium VI [11]	10 U	10 U	10 U	10 U	10 U	10 U
Lead [10]	0.7 U	0.7 U	0.7 U	1.2 B	1.2 B	0.7 U
Manganese [7,000]	26.9	41.5	32.3	316	35.0	1110
Nickel [100]	1.3 B	4.8 B	2.8 B	3.5 B	1.6 B	6.2
Silver [50]	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vanadium [245]	0.5 U	0.56 B	0.74 B	0.5 U	1.2 B	0.58 B
Zinc [47]	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Cyanide [5.2]	10 U	10 U	10 U	10 U	10 U	10 U
Tin [21,000]	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U

Key:

[15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.

U = Analyte not detected. The value shown is the associated detection limit.

B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).

J = Estimated Value.

Notes:

All concentrations are in ug/L.

* Wells S-4 and S-4D were abandoned and replaced with well S-4A.

TABLE B-3
FIRST QUARTER 1999 ANALYTICAL RESULTS FOR
UNNAMED DITCH SURFACE WATER SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

Location	SW-1	SW-2
ENVIRON Sample ID	ECSW1-02	ECSW2-02
Collection Method	Sample Bottle	Sample Bottle
Collection Date	2/17/99	2/17/99
Comments		
Volatile Organics		
1,1-Dichloroethene [1.85]	0.5 U	0.5 U
1,2-Dichloroethene(total) [1.85]	0.5 U	0.8
Ethylbenzene [3,280]	0.5 U	0.5 U
Methylene Chloride [15.7]	0.8 B	0.8 B
Tetrachloroethene [8.85]	0.5 U	0.5 U
Toluene [3,400]	0.5 U	0.5 U
1,1,1-Trichloroethane [5,280]	0.5 U	0.5 U
1,1,2-Trichloroethane [41.8]	0.5 U	0.5 U
Trichloroethene [80.7]	0.5 U	0.5 U
Xylene [10,000]	0.5 U	0.5 U
Vinyl chloride [525]	0.5 U	0.5 U
Semi-Volatile Organics		
Bis (2-ethylhexyl) phthalate [50,000]	2 J	10 U
Di-n-butyl phthalate [154,000]	10 U	10 U
1,2-Dichlorobenzene [763]	10 U	10 U
Diethylphthalate [52,100]	10 U	10 U
Naphthalene [620]	10 U	10 U
Phenol [570]	10 U	10 U
Polychlorinated biphenyls		
Aroclor-1016 [0.00079]	0.48 U	0.48 U
Aroclor-1221 [0.00079]	0.97 U	0.95 U
Aroclor-1232 [0.00079]	0.48 U	0.48 U
Aroclor-1242 [0.00079]	0.48 U	0.48 U
Aroclor-1248 [0.00079]	0.48 U	0.48 U
Aroclor-1254 [0.00079]	0.48 U	0.48 U
Aroclor-1260 [0.00079]	0.48 U	0.48 U
Inorganics		
Antimony [14]	1.6 B	1.0 U
Arsenic [0.0175]	1.4 U	1.4 U
Barium [1,000]	81.9	85.8
Beryllium [4]	0.5 U	0.5 U
Cadmium [10]	0.91 B	1.0 U
Chromium VI [11]	10 U	10 U
Lead [10]	1.6 B	1.2 B
Manganese [7,000]	161	209
Nickel [100]	8.2	8.3
Silver [50]	0.4 U	0.4 U
Vanadium [245]	0.8 B	0.5 U
Zinc [47]	3.8 B	2.4 B
Cyanide [5.2]	10 U	10 U
Tin [21,000]	2.7 U	2.7 U

Key:

[15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.

U = Analyte not detected. The value shown is the associated detection limit.

B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).

J = Estimated Value.

Note:

All concentrations are in ug/L.

TABLE B-4
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR ON-SITE
TILL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 1 of 2]

Location	T-1	T-2	T-3	T-4A
ENVIRON Sample ID	ECTGW-01	ECTGW-02	ECTGW-03	ECTGW-04
Collection Method	Bailer	Bailer	Bailer	Bailer
Collection Date	5/10/99	5/11/99	5/11/99	5/11/99
Comments				
Volatile Organics				
Acetone [3,500]	2 U	12,000 U	780 U	2 U
1,1 Dichloroethene [7]	0.5 U	1,900 J	160 U	0.5 U
1,2-Dichloroethene(total) [70]	0.5 U	4,200	5,780	0.5 U
Ethylbenzene [680]	0.5 U	1,900 J	160 U	0.5 U
Methyl ethyl ketone [170]	2 U	12,000 U	780 U	2 U
Methyl isobutyl ketone [1,750]	2 U	12,000 JB	780 U	2 U
Methylene Chloride [4.7]	1	71,000	98 JB	1
Tetrachloroethene [0.69]	14	79,000 D	160 U	0.5 U
Toluene [2,000]	2	22,000	190	0.5 U
1,1,1-Trichloroethane [200]	9	91,000 D	160 U	0.5 U
1,1,2 Trichloroethane [.61]	0.5 U	2,500 U	160 U	0.5 U
Trichloroethene [5]	22	190,000 D	160 U	0.6
Xylenes (total) [10,000]	0.6	8,900	160 U	0.5 U
Vinyl Chloride [2]	0.4 J	2,500 U	270	0.5 U
Semi-Volatile Organics				
Bis (2-ethylhexyl) phthalate [2.5]	2 J	8,000 J	9 J	10 U
Di-n-butyl phthalate [3,500]	11 U	10,000 U	10 U	10 U
1,2-Dichlorobenzene [600]	11 U	77,000	9 J	10 U
Diethylphthalate [28,000]	11 U	10,000 U	10 U	10 U
Naphthalene [14,000]	11 U	18,000 J	1 J	10 U
Isoporone [8.5]	11 U	10,000 U	3 J	10 U
Phenol [1,400]	11 U	10,000 U	10 U	10 U

TABLE B-5
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
TILL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

[Page 1 of 2]

Location		T-5	T-6	T-7	T-8	T-9	T-9	T-10
ENVIRON Sample ID		ECTGW-05	ECTGW-06	ECTGW-07	ECTGW-08	ECTGW-09	ECTGW-09D	ECTGW-10
Collection Method		Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Collection Date		5/10/99	5/12/99	5/12/99	5/12/99	5/12/99	5/12/99	5/12/99
Comments							Duplicate	
<i>Volatile Organics</i>								
1,1-Dichloroethene	[1.85]	0.5 U	620 U	2 U	0.5 U	0.5 U	0.5 U	0.4 J
1,2-Dichloroethene (total)	[1.85]	0.5 U	54,000 D	69	6	0.6	0.6	228 D
Ethylbenzene	[3,280]	0.5 U	620 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	[15.7]	0.4 J	570 JB	2 JB	0.5 JB	0.6 B	0.9 B	0.6 B
Tetrachloroethene	[8.85]	0.5 U	620 U	2 U	1	0.5 U	0.5 U	0.5 U
Toluene	[3,400]	0.5 U	4,300	2 U	0.5 U	0.3 J	0.2 J	0.5 U
1,1,1-Trichloroethane	[5,280]	0.5 U	4,100	2 U	0.4 J	0.5 U	0.5 U	19
1,1,2-Trichloroethane	[41.8]	0.5 U	620 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	[80.7]	0.5 U	620 U	8	2	0.5 U	0.5 U	2
Vinyl chloride	[525]	0.5 U	2,500	1 J	0.4 J	35 D	43 D	5
<i>Semi-Volatile Organics</i>								
Bis (2-ethylhexyl) phthalate	[50,000]	12 U	1 J	2 J	9 U	4 J	1 J	3 J
Di-n-butyl phthalate	[154,000]	12 U	10 U	10 U	9 U	10 U	10 U	11 U
1,2-Dichlorobenzene	[763]	12 U	52 D	10 U	9 U	10 U	10 U	11 U
Diethylphthalate	[52,100]	12 U	1 J	10 U	9 U	10 U	10 U	11 U
Naphthalene	[620]	12 U	10 J	10 U	9 U	10 U	10 U	11 U
Phenol	[570]	2 J	230 D	18	9 U	10 U	10 U	11 U

TABLE B-5
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
TILL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

[Page 2 of 2]

Location		T-5	T-6	T-7	T-8	T-9	T-9	T-10
ENVIRON Sample ID		ECTGW-05	ECTGW-06	ECTGW-07	ECTGW-08	ECTGW-09	ECTGW-09D	ECTGW-10
Collection Method		Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
Collection Date		5/10/99	5/12/99	5/12/99	5/12/99	5/12/99	5/12/99	5/12/99
Comments							Duplicate	
Polychlorinated biphenyls								
Aroclor-1016	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Aroclor-1221	[0.00079]	1.0 U	1.1 U	1.1 U	1.0 U	1.1 U	1.0 U	1.0 U
Aroclor-1232	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Aroclor-1242	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Aroclor-1248	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Aroclor-1254	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Aroclor-1260	[0.00079]	0.53 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Inorganics								
Arsenic	[0.0175]	3.0 B	36.8	1.4 U	2.0 B	1.4 U	1.5 B	1.4 U
Chromium (VI)	[11]	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Lead	[10]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5 B
Nickel	[100]	3.3 B	31.2	7.2	2.5 B	16.6	17.5	14.2
Zinc	[47]	13.5 B	19.0 B	0.40 U	9.8 B	18.0 B	191	67.3
Cyanide	[5.2]	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U

Key:

- [15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.
- U = Analyte not detected. The value shown is the associated detection limit.
- B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).
- J = Estimated Value.
- D = Compound quantitated on a diluted sample.

Note:

All concentrations are in ug/L.

TABLE B-6
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
SAND/GRAVEL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA
[Page 1 of 2]

Location		S-1	S-2	S-3	S-4A*	S-4A*	MW13
ENVIRON Sample ID		ECSGW-01	ECSGW-02	ECSGW-03	ECSGW-04	ECSGW-04D	ECSL-WMW-13
Collection Method		Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump
Collection Date		5/11/99	5/11/99	5/11/99	5/11/99	5/11/99	5/13/99
Comments						Duplicate	
Volatile Organics							
1,1-Dichloroethene	[1.85]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.5 U
1,2-Dichloroethene (total)	[1.85]	0.5 U	0.5 U	0.5 U	100	87	2.5
Ethylbenzene	[3,280]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.5
Methylene Chloride	[15.7]	0.7	0.3 J	0.9	4 U	4 U	1 B
Tetrachloroethene	[8.85]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.5 U
Toluene	[3,400]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.5 U
1,1,1-Trichloroethane	[5,280]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.7
1,1,2-Trichloroethane	[41.8]	0.5 U	0.5 U	0.5 U	4 U	4 U	0.5 U
Trichloroethene	[80.7]	0.8	0.5 U	0.3 J	4 U	4 U	0.6
Vinyl chloride	[525]	0.5 U	0.5 U	0.5 U	3 J	3 J	0.5 U
Semi-Volatile Organics							
Bis (2-ethylhexyl) phthalate	[50,000]	10 U	10 U	10 U	10 U	1 J	9 U
Di-n-butyl phthalate	[154,000]	10 U	10 U	10 U	10 U	10 U	9 U
1,2-Dichlorobenzene	[763]	10 U	10 U	10 U	10 U	10 U	9 U
Diethylphthalate	[52,100]	10 U	10 U	10 U	10 U	10 U	9 U
Naphthalene	[620]	10 U	10 U	10 U	10 U	10 U	9 U
Phenol	[570]	10 U	10 U	10 U	10 U	10 U	9 U

TABLE B-6
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR OFF-SITE
SAND/GRAVEL MONITORING WELLS SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

[Page 2 of 2]

Location		S-1	S-2	S-3	S-4A*	S-4A*	MW13
ENVIRON Sample ID		ECSGW-01	ECSGW-02	ECSGW-03	ECSGW-04	ECSGW-04D	ECSL-WMW-13
Collection Method		Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump
Collection Date		5/11/99	5/11/99	5/11/99	5/11/99	5/11/99	5/13/99
Comments						Duplicate	
Polychlorinated biphenyls							
Aroclor-1016	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Aroclor-1221	[0.00079]	1.1 U	1.0 U	1.0 U	0.93 U	1.0 U	1.0 U
Aroclor-1232	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Aroclor-1242	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Aroclor-1248	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Aroclor-1254	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Aroclor-1260	[0.00079]	0.54 U	0.50 U	0.50 U	0.47 U	0.51 U	0.50 U
Inorganics							
Arsenic	[0.0175]	1.4 U	1.4 U	4.4 B	2.0 B	1.4 U	12.7
Chromium (VI)	[11]	10 U	10 U	10 U	10 U	10 U	10 U
Lead	[10]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel	[100]	1.3 B	5	10.4	2.1 B	1.4 B	4.8 B
Zinc	[47]	4.8 B	12.4	0.40 U	0.40 U	0.40 U	0.40 U
Cyanide	[5.2]	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U

Key:

- [15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.
- U = Analyte not detected. The value shown is the associated detection limit.
- B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).
- J = Estimated Value.
- D = Compound quantitated on a diluted sample.

Notes:

- All concentrations are in ug/L.
- * Wells S-4 and S-4D were abandoned and replaced with well S-4A.

TABLE B-7
SECOND QUARTER 1999 ANALYTICAL RESULTS FOR
UNNAMED DITCH SURFACE WATER SAMPLES
ENVIRO-CHEM SITE
ZIONSVILLE, INDIANA

Location	SW-1	SW-2
ENVIRON Sample ID	ECSW-01	ECSW-02
Collection Method	Sample Bottle	Sample Bottle
Collection Date	5/13/99	5/13/99
Comments		
<i>Volatile Organics</i>		
1,1-Dichloroethene [1.85]	0.5 U	0.5 U
1,2-Dichloroethene (total) [1.85]	0.5 U	1
Ethylbenzene [3,280]	0.5 U	0.5 U
Methylene Chloride [15.7]	1	2 B
Tetrachloroethene [8.85]	0.5 U	0.5 U
Toluene [3,400]	0.5 U	0.5 U
1,1,1-Trichloroethane [5,280]	0.5 U	0.5 U
1,1,2-Trichloroethane [41.8]	0.5 U	0.5 U
Trichloroethene [80.7]	0.5 U	0.5 U
Vinyl chloride [525]	0.5 U	0.5 U
<i>Semi-Volatile Organics</i>		
Bis (2-ethylhexyl) phthalate [50,000]	5 J	10 U
Di-n-butyl phthalate [154,000]	10 U	10 U
1,2-Dichlorobenzene [763]	10 U	10 U
Diethylphthalate [52,100]	10 U	10 U
Naphthalene [620]	10 U	10 U
Phenol [570]	10 U	10 U
<i>Polychlorinated biphenyls</i>		
Aroclor-1016 [0.00079]	0.50 U	0.50 U
Aroclor-1221 [0.00079]	1.0 U	0.99 U
Aroclor-1232 [0.00079]	0.50 U	0.50 U
Aroclor-1242 [0.00079]	0.50 U	0.50 U
Aroclor-1248 [0.00079]	0.50 U	0.50 U
Aroclor-1254 [0.00079]	0.50 U	0.50 U
Aroclor-1260 [0.00079]	0.50 U	0.50 U
<i>Inorganics</i>		
Arsenic [0.0175]	2.9 B	4.6 B
Chromium (VI) [11]	10 U	10 U
Lead [10]	1.0 U	1.0 U
Nickel [100]	20.5	19.7
Zinc [47]	14.2 B	6.5 B
Cyanide [5.2]	10.3	7.1 B

Key:

- [15.7] = Acceptable Stream Concentration from Revised Exhibit A, Table 3-1.
U = Analyte not detected. The value shown is the associated detection limit.
B = Analyte was also detected in the blank (organics) or value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit (inorganics).
J = Estimated Value.

Note:

All concentrations are in ug/L.